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**Understanding
how the state
of the body
influences
behavior,
emotions and
thinking**

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Changes of state change the metabolism which changes behavior, thinking and emoting

Chemical messengers & hormones	Amount and direction of change
Noradrenalin	Large increase
Adrenalin	Very little increase
Testosterone	Very little increase
Cortisol	Little change
Chemical messengers & hormones	Amount and direction of change
Adrenalin	Large Increase
Cortisol	Increase
Noradrenalin	Small increase
Testosterone	Little or no change
Chemical messengers & hormones	Amount and direction of change
Cortisol	Large Increase
Adrenalin	Little change
Noradrenalin	Little change
Testosterone	Decrease



Anger, Aggression, Fight



Fear
Withdrawal
Flight



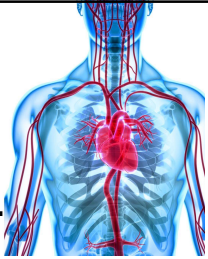
Depression
Submission
Loss of
control

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This is what happens to **your body when you are overstressed...**



- Hypothalamus activates the adrenal glands to release adrenaline and cortisol.
- Stress hormones affect your respiratory and cardiovascular systems
- Liver produces extra blood sugar (glucose) to give you a boost of energy
- Muscles tighten in the body which can cause headaches, back and shoulder pain, and body aches
- Stress hormones will weaken your immune system and reduce your body's response to foreign pathogens

With changes occurring in the body, why would we ever expect thinking, emotion and behavior to be unaffected?



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Traditional Types of Trauma


- Natural disasters
- Mass interpersonal violence
- Domestic fires
- Motor vehicle accidents
- Rape & Sexual assault
- Physical assault
- Partner/Family battery
- Torture
- War
- Child Abuse
- Emergency worker exposure



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We need a working understanding of trauma in order help people regardless of our role

1. Trauma/adversity/stress activates **the Central Nervous System** (CNS)
2. When the (CNS) gets out of balance the **Autonomic Nervous System** begins to activate self-correction, self-healing, adaptive and mitigating processes



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Balance System

(Autonomic Nervous System)

- Regulates body processes
- Works automatically (autonomously), without a person's conscious effort.
- When out of balance, **ADAPTIONS** or **MITIGATIONS** occur in body to initiate healing
- Behavioral symptoms result from the over-use of the threat/stress response system coupled with the body's effort to heal.

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Ouch!!!!



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Body
Experience

The body distress, pain or upset that dysregulates the nervous system

Distance creating begins, sometimes called avoidance

Distancing gives relief or it increasingly creates space

Distance or space give relief

Perception
awareness

Lack of
awareness

Mitigation process

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If you have had a Sun Burn have you mitigated?

Do you change your behavior?

- ✓ Staying out of the sun
- ✓ The clothes you wear
- ✓ How much physical contact with others you will tolerate
- ✓ How you sit comfortably

Do you notice that you get angry more easily?

If someone looks like they might touch you are you more reactive?

Do you get a little extra snappish with people, even loved ones?

RISK

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If you have had a Sun Burn have you mitigated?

Did you put something on the sunburn to reduce the pain?

- ✓ Aloe vera?
- ✓ Aloe vera with lidocaine (topical analgesic)?
- ✓ Vinegar?
- ✓ Hemorrhoid cream?
- ✓ hydrocortisone cream?
- ✓ Tea bags?
- ✓ Aspirin, ibuprofen ?

Did you use some substance to give you relief from pain and distress?

Mitigating reduces the risk of further distress and pain!!!

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What happens as the body creates a LIMBIC shift or sympathetic system dominance ?

Sympathetic/Hot:

- Diaphragm muscles constrict
- Accelerate the heart rate
- Constricted blood vessels that raise blood pressure, muscle tension, physical sensation amplification.
- Inhibition of insulin production to maximize fuel availability
- Cold hands and feet
- Headaches

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A Burning Question



What happens to EMOTIONS, THINKING, and BEHAVIOR when the state of the body shifts?

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Nature of the sympathetic system

- Immediate
- No future
- Impulsive
- Irrational/illogical
- No plan outside of the immediate activity
- Little self reflection
- Little evaluation



Absolutely correct behavior!!!!

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Change or transformation requires
Bruce Banner not the HULK

A metaphor to use
when thinking
about how the
body changes
thinking, emoting
and behaving



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How does trauma get created?

OR

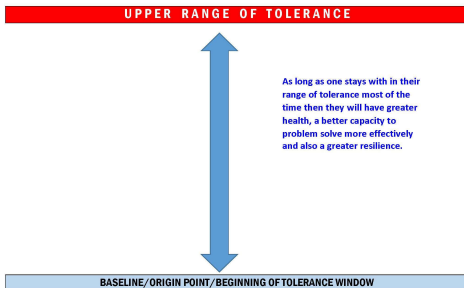
**How does the body get “pushed” to the point
that it must adapt or mitigate?**

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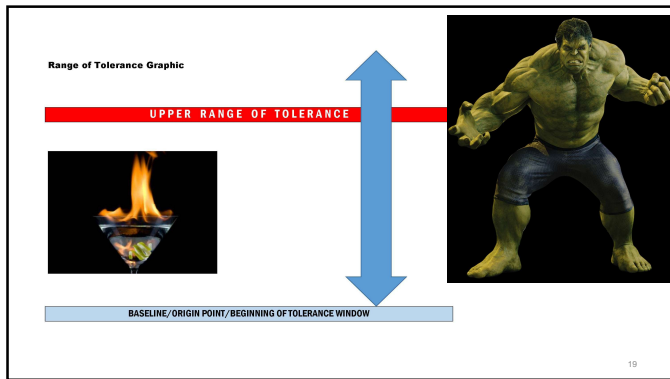
Range of Tolerance Graphic



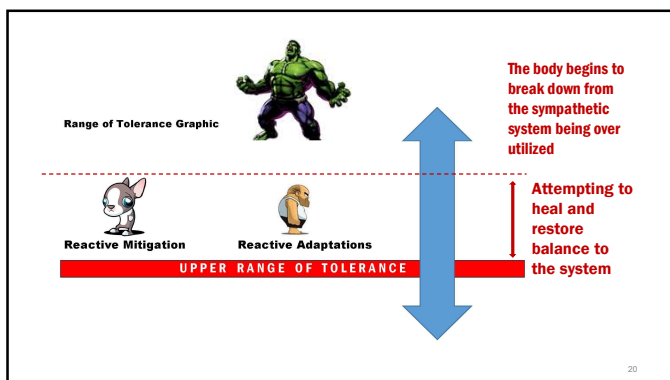
As long as one stays with in their
range of tolerance most of the
time then they will have greater
health, a better capacity to
problem solve more effectively
and also a greater resilience.

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What will be experienced as we move above threshold?

Physiological Responses to trauma, adversity and toxic stress

- rapid heartbeat
- elevated blood pressure
- difficulty breathing
- chest pains
- cardiac palpitations
- muscle tension and pains
- fatigue, fainting, flushed face, pale appearance, chills, cold clammy skin, increased sweating, thirst, dizziness, vertigo, hyperventilation, headaches, grinding of teeth, twitches and gastrointestinal upset.

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What will be experienced as we move above threshold?

- **Behavioral Responses to trauma, adversity and toxic stress**
 - “spacing-out”
 - non-communication
 - regressive behaviors
 - erratic movements
 - impulsivity
 - seemingly aimless movement
 - exaggerated startle response and antisocial behaviors.

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What will be experienced as we move above threshold?

- **Cognitive Responses to trauma, adversity and toxic stress**
 - impaired concentration
 - Confusion
 - Disorientation
 - difficulty in making a decision
 - shortened attention span
 - Forgetfulness
 - worry about losing control
 - hypervigilance

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What will be experienced as we move above threshold?

- **Emotional Responses to trauma, adversity and toxic stress**
 - highly anxious
 - emotionally-numb
 - may exhibit *denial*
 - may evidence *dissociation*
 - Apathetic
 - may express feelings of unreality.
 - acute and volatile emotional responses
 - panic, fear, intense feelings of aloneness, hopelessness, helplessness, emptiness, uncertainty, horror, terror, anger, hostility, irritability, depression, grief and feelings of guilt.

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A single dose of the fiery cocktail regardless of dose size may take 8-30 hours to

metabolize

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Impact of 2 ingredients of the fiery cocktail!
There are many more



• **CORTISOL**

a. **Reduces**

- ✓ Hippocampal activity
- ✓ Executive functioning
- ✓ The ability to create sequential memory
- ✓ Ability to see differences or distinctions (reality checking)

b. **Restricts access to the (impulse control center)**

c. **Can act as a neurotoxin**

• **ADRENALIN**

a. **Increases**

- ✓ Emotional memory
- ✓ Sensory memory
- ✓ Fear, anxiety, phobias, hallucinations, depression, agitation

b. **Reduces**

- ✓ ability to focus
- ✓ sleep patterns
- ✓ problem solving
- ✓ goal follow through and attainment

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A Physical metaphor



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Hippocampal function

- Creates discrete/distinct elements from experience
- Necessary for reality checking
- Modifies and governs Amygdala function
- Serialize and/or sequence time within a context
- Connect separate brain regions as part of active integration
- Enhance cognitive functioning and access to executive functioning
- Enhances cognitive flexibility
- Increases ability to inhibit behavior
- Greater sequential memory

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mPFC medial prefrontal cortex & dorsolateral prefrontal cortex

- Logic
- Reason
- Evaluation
- Planning
- Impulse control
- Create time sequence
- Focus attention intentionally
- Set-shifting (*the ability to up-date emotion, behavior, and thinking when the environment or rules change*)
- Reward evaluation

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When the brain isn't regulated multiple areas are adversely impacted

Areas Impacted:

Biological
Emotional
Cognitive
Social

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So are big bad events necessary to have the symptoms of trauma?

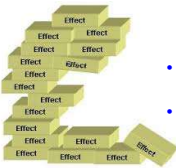


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Small repeated events: The cumulative harm effect



- **Chaotic environments**
 - What are chaotic environments
- **Aggressive environments**
 - What is an aggressive environment (anytime rules come before relationship)
- **Punitive environments**
 - Where there is a demand for performance that is valued more highly than attachment or relationship
 - When the rules for operating constantly flux based on the annoyance of those in charge
- **Inconsistent practices**
 - What does this look like
- **Instability**
 - Lack of predictability
 - Inability to trust situation

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SHIFT HAPPENS

What absolutely correct, though possibly unfortunate behavior, thinking and emotion

would you expect to see when some one shifts into sympathetic system dominance?

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[illegible]

35

[illegible]

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What is stability?

When the brain is well linked, with differential parts working together it creates stability.

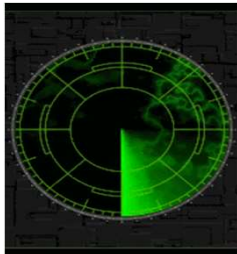


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The Body's Radar System: Anterior Cingulate of the Cortex (ACC)



- An active relevancy system that is totally individualized based on one's history.
- Arousal impacts the relevancy process
- Those things that activate arousal create attentional competition based on the relevancy

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Repeated Activation of the *Relevancy System* (ACC)

The **threat perception system** is enhanced or expanded.

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Repeated Activation of the *Relevancy System* (ACC)

Increased **potentiated reaction** --- faster too react, where other people might be able to pause before reacting.



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Repeated Activation of the *Relevancy System* (ACC)

This system that distinguishes the relevant and important in the here and now gets distorted. (**Attribution Errors**)

- a. Collapses reaction time
- b. Collapses categories
- c. Increasingly difficult to behave with integrity to self

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Repeated Activation of the *Relevancy System* (ACC)

4. Is Memory **reliable**?

- When there is a high level of significance energy in the brain and nervous system is focused on the relevant, and not noticing, or giving energy to other system demands.
 - Attention is always focused on the relevant
 - Energy competition in the brain is high in sympathetic dominant states
5. Patterns of relevance that get repeatedly activated create cue-based (triggers) that tend to **amplify and narrow perceptual focus**.
- Because the relevant memory is full of a lot of false information we get stuck in a past state of arousal

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Repeated activation of the Radar System

6. The self-sensing system that is devoted to your experience of yourself in multiple domains (physically, emotionally, psychologically, etc) gets blunted or corrupted, making accurate self-evaluation difficult.

- **Externally focused, not seeing the internal aspects of life**
- **Increases self-centeredness and a failure to see self as a causal agent in reactions**

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A terribly inconvenient truth!



Successful change can only occur with Bruce Banner Brain.

Change will not be effective with the Hulk Brain

How do you get people in the Bruce Banner Brain and out of the Hulk Brain is where helping and healing start. **NOT...behavior, thinking or emotions!!!!**

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If the ACC has been activated too often or stayed on too long, these are what you should see!

- A. Rigid black and white thinking (sometimes thought of as irrational beliefs)
- B. Strong beliefs systems that are not open to change
- C. Many negative internal dialogues
- D. Overly negative memories
- E. Overly focused on finding pain, hurt and disappointment (negativity)
- F. No tolerance for delayed gratification, everything is immediate
- G. No ability to really orient to the future
- H. Impulsive; Irrational/illogical
- I. Little if any consistent self reflection or evaluation of the self

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Behaviors Associated



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When the Hot System is activated...

- Shift away from real time environmental appraisal into the past. (*my present is contaminated by my history*)
- Perceptions shift to worrisome fantasies, memories, or repetitive negative thinking
- Internal conditioned dialogues are activated (inner critic)


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When the Hot System is activated...

- Language ability reduces
- Logic and reason shift
- Moral reasoning lessens or disappears
- Reacting to perceptions
- Ruled by history or impulse rather than being intentional.



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When the Hot System is activated...

The mPFC gets dysregulated

- Poor impulse control
- Inadequate pleasure from activities that should be pleasurable
- Memory gaps and partial memory
- Problems with Sequential memory

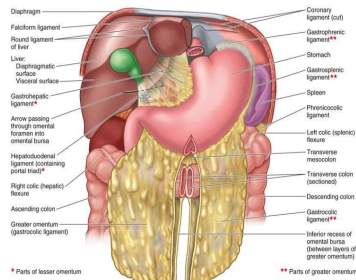
What is problematic, is almost everyone will see this behavior as volitional, rather than a response to dysregulation.

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What are some of the suppressed systems?

- **Sub-diaphragmatic systems**
 - a. Gastro-intestinal functions
 - b. Reduced nutrition from foods eaten
 - c. Elimination difficulties
 - d. Inflammation leading to a host of illnesses and pain
 - e. Painful sexuality

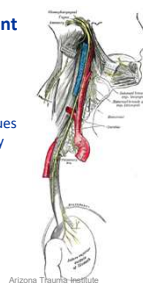


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What are some of the suppressed systems?

- **Relational/social engagement system (VVC)**
 - a. Poor quality attachments
 - b. Self-centered and narcissistic behaviors
 - c. Poor understanding of social cues
 - d. Unstable friendships and family relationships



Effecting Ventral Vagal Activity

- Touch
- Voice
- Eye contact
- Listening for attunement
- Facial expressions
- Body posture
- Pleasant level of warmth
- Relaxed muscles
- Rhythmic movement

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What about Executive Function



Sympathetic system or the (HULK BRAIN) blocks access to executive functioning

1. Avoid (real or perceived) threat through flight
2. Shut down and freezes the body, paralyzing any action
3. Reduce (real or perceived) threat through aggression
4. Alter body tension and muscle readiness to act
5. tension and muscle readiness to act

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What about Executive Function

Parasympathetic and Ventral Vagal systems give access to executive functioning

1. Bodily Regulation and coordination of physiological responses
2. Attuned Communications
3. Emotional balance and regulation
4. Flexibility in response (pause before reacting)
5. Fear modulation --- (RRR) response
6. Empathy
7. Insight/discernment/judgment
8. Moral awareness
9. Intuition/spiritual feelings
10. Identity

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What might be the challenges you could face working with people who have a history of adversity?

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Working with people that have a history of **Sympathetic/Limbic** dominance

- They will likely have a reduced processing capacity (*how much the brain can handle and process at one time*)
 - Ψ low tolerance for demand
 - Ψ Will need to be clear and concrete
 - Ψ Can not tolerate lists, one item at a time
- Verbal memory impaired, it will be difficult to retain information verbally...like instructions
 - Ψ Physiologically the muscles of the middle ear are not functioning well
 - Ψ The language centers of the brain get corrupted with increased levels of cortisol
 - Ψ Difficulty processing information
 - Ψ Difficulty converting verbal instructions into memory and keeping things sequenced

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Working with people that have a history of **Sympathetic/Limbic dominance**

- Generalizing ability reduced...difficulty carrying learning in one situation to another.
 - ψ May go through the same experience multiple times and not be able to generalize to similar events or situations.
- Difficulty initiating or starting an action
 - ψ Will not understand many situations or have any experience with what people feel is generally normal and all people should know
 - ψ Since they possess very little life experience that is normative, they have difficulty recreating normative behaviors.
- Reduced ability to see big picture or broader issues
- Inability to evaluate consequences of action/behavior

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Working with people that have a history of **Sympathetic/Limbic dominance**

- Reduced ability to self-monitor and respond to social cues
 - ψ The "ventral vagal system is compromised"
- Reduced ability to inhibit behavior, or stop one's self
 - ψ mPFC and dlPFC are impaired so stopping mechanism impaired
 - ψ Reward evaluation, punishment evaluation systems are also impaired
- Use sentences with few words...generally 5-9 max

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Now that you know, what can you do?

Active in daily personal growth

We work on our own self-regulation, self-awareness, courage, compassion toward others, and personal integrity in our own daily lives.

- What have you done today "on purpose with a plan" to improve your character, talents, skills, relationships
- How do make sure you grow past your upsets, failures or disappointments
- What is your PLAN to grow tomorrow and then the next day, and so on

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Do you really want to help?

Activate the inner resources in self and others

Focus on helping other find their inherent competency and capacity, emphasizing wholeness and possibility over pathology or weakness. Use our daily interactions with others to lift them up and empower.

- What are you doing everyday to keep and enjoy relationships
- What things do you do to build your inner resources daily
 - Faith
 - Learning
 - Moving your body/exercising
 - Actively practicing compassion and kindness, even in the most annoying circumstances

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Every interaction designed to create integration of the brain

1. To avoid poking peoples sunburns and activating their sore spots

- ✓ Never rely on your assumptions, they are wrong
- ✓ Never judge the behavior, thinking or emotions of other
- ✓ Never put additional demands on someone that is not integrated

2. To help those with large and painful Sore Spots and Sunburns to feel safe, accepted and respected by you.

- ✓ They feel liked by you
- ✓ They feel like you care, not because you say so, but that you act so
- ✓ Never explore their painful past or activate their memories in a body that isn't relaxed

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Every interaction designed to create integration of the brain

3. To help those trying to avoid real or perceived (possibility of) pain find ways to adapt in more healthy ways.

- ✓ Do not confront emotions, thinking and behaviors that are designed to create space, doing so drives them to do more mitigating.
- ✓ Never confront when you are not well regulated and in an integrated brain

4. To help people heal from the pain, distress, and fear associated with sunburns and sore spots by helping them find competence and value.

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Now that you know, what can you do?

- People with histories of adversity have less processing capacity because they have many broken links. *Get the brain and nervous system calm first, restoring the links!!!!*
 - Think thru what to say before saying
 - Make sure you are in Bruce Banner mode, before you open your mouth
 - Make sure you can stay in Bruce Banner mode, no matter what others do or say
 - Realize no one can solve problems well in HULK mode, stop trying to intervene with the Hulk and invite others to live Bruce Banner lives.

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Now that you know, what can you do?

- Be brief and clear, give many vivid descriptive examples of success, that show real effort!
 - ☒ Think it through, and say it with as few words as possible
 - ☒ Give vivid examples of how people succeed, (what it looks like)
 - ✓ Include the efforts necessary
 - ✓ The challenges that are common
 - ✓ And how people triumphed
 - ☒ Talk about real stumbling blocks and how people deal with them

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Now that you know, what can you do?

- Logic and reason systems will likely be off-line unless the brain and nervous system are calm.
 - Stop trying to get logic, and reason out of the HULK brained folks
 - Always go for regulation and stability first, so that you can be effective
- Focus on the environment and it's qualities more than behavior and emotion.
 - Pay attention to the environment, is it one that invites Bruce Banner or the HULK, not for you but for the other that you are dealing with
 - Learn to calm environments and people

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Now that you know, what can you do?

- Genuinely like and care for the person/people you are with (*stop making their compliance or performance a criteria of liking*).
- When giving information follow this format:
 1. Overview/orient
 2. Show how this "activity/part" fit in the overviewed material
 3. Give examples of how people are successful achieving this activity/part
 4. Summarize by embedding them in a their success story
 5. Ask for their feedback, "*so as you move through this situation what do you expect you will experience?*"

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Now that you know, what can you do?

- Be organized and planful
- Develop and maintain faith in the people you work with
- Be predictable and routine
- Be reliable and transparent
- Collaborate on all documentation and disposition reports
- Build in breaks. . . "I have been writing for 5 minutes, and my hand is cramping, would you be ok with me just taking a break and shaking it out for a minute"
- Always follow-up on requests, questions, suggestions, and any feedback

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